



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,326	09/10/2004	Yasuhide Otsu	APA-0215	4008

23353 7590 09/21/2006

RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER
----------

HEINRICH, SAMUEL M

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

<b>Office Action Summary</b>	<b>Application No.</b> 10/507,326	<b>Applicant(s)</b> OTSU ET AL.	
	<b>Examiner</b> Samuel M. Heinrich	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,8-14,16 and 21-24 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-14,16 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 21-24 recite "driving successively the plurality of laser light sources", however the specification does not recite successively driving or moving.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 1725

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 8-14, 16, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,407,360 to Choo et al in view of USPN 5,513,195 to Opower et al and in view of USPN 5,705,788 to Beyer et al and in view of any of USPN 7,058,093 to Kennedy et al or USPN 5,763,853 to Shimomura et al or USPN 4,120,582 to De Vries et al. Choo et al describe laser cutting of brittle material with a laser including sensing means. Opower et al describe the application of laser energy to work via a bundled fiber system. Beyer et al describe well known measuring of the light distribution in a bundled fiber laser system. The use of bundled fiber laser components in laser cutting would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the bundled fibers are adaptable to many shapes and provide simplified tool setup. Substitution of a measuring and control device for a fiber bundle system in place of the measuring and control device described by Choo et al would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the fiber bundle distributes light in an array. Sensing and measuring both reflected light and light transmitted through a workpiece is well known in the art. See Kennedy et al (column 28, lines 2-28), Shimomura et al (column 21, lines 54-63), and De Vries et al (Abstract); all describe both reflected and transmitted light sensing. The use of both reflected and transmitted light for control in cleaving would have been obvious at the time applicant's invention

Art Unit: 1725

was made to a person having ordinary skill in the art because the data provides good control.

Claims 6, 8, 14, 16, 23, and 24 are rejected under 35 U.S.C. 103(a) as being anticipated by USPN 6,888,853 to Jurgensen in view of USPN 6,086,366 to Mueller et al and further in view of US20030074096 to Das et al and in view of any of USPN 7,058,093 to Kennedy et al or USPN 5,763,853 to Shimomura et al or USPN 4,120,582 to De Vries et al. Jurgensen describes (e.g., Figures 4 and 20-37, column 37, line 38+) apparatus comprising plural light sources, plural optical fibers, scanning means, position moving means, and control means which meet the structural limitations of the instant claims. Mueller et al describe (column 1, lines 52-57) control of intensity of radiation in the ablation region and describe (column 3, lines 12+) using a reflected measurement beam for process control. Das et al describe (claims 19, 21, and 37) well known feedback from an emissivity measuring pyrometer for laser power control. The use thereof in the Jurgensen apparatus would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the spot control is known in Jurgensen and because light intensity measuring means is known as disclosed by Das et al for controlling laser beam application. The intended use of the apparatus, for cutting brittle material, does not impart patentability to the apparatus claims. Jurgensen describes (column 37, last five lines) the well known modulation and shaping control of the processing spot. Sensing and measuring both reflected light and light transmitted through a workpiece is well known in the art. See Kennedy et al (column 28, lines 2-28), Shimomura et al (column 21, lines 54-63), and De Vries et al

Art Unit: 1725

(Abstract); all describe both reflected and transmitted light sensing. The use of both reflected and transmitted light for control in cleaving would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the data provides good control.

Claims 1-5, 9-13, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP410034364A in view of JP2001228449 and further in view of US20030074096 to Das et al and in view of any of USPN 7,058,093 to Kennedy et al or USPN 5,763,853 to Shimomura et al or USPN 4,120,582 to De Vries et al. JP410034364A describes splitting brittle material by applying plural beams having different characteristics. JP2001228449 describes the use of bundled optical fibers in a laser machining device. The use of the selective beam application with a fiber optic bundle used for intermediate delivery of plural beams for brittle material splitting would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the bundled beam delivery provides an efficient delivery of the plural beams. Das et al describe (claims 19, 21, and 37) well known feedback from an emissivity measuring pyrometer for laser power control. The use thereof in the brittle material splitting methods and apparatus would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the variable spot control is known and because light intensity measuring means is known as disclosed by Das et al for controlling laser beam application. Sensing and measuring both reflected light and light transmitted through a workpiece is well known in the art. See Kennedy et al (column 28, lines 2-28), Shimomura et al (column 21, lines 54-63),

Art Unit: 1725

and De Vries et al (Abstract); all describe both reflected and transmitted light sensing. The use of both reflected and transmitted light for control in cleaving would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the data provides good control.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

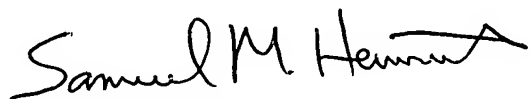
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Caldwell et al, Berkovic et al, Bogart et al, Crosby, and Otsubo et al all describe measuring light both reflected and transmitted through an object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, reading "Samuel M. Heinrich". The signature is fluid and cursive, with a long horizontal stroke at the end.

Samuel M Heinrich  
Primary Examiner  
Art Unit 1725

SMH